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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,904	03/21/2006	Tomohiro Shinagawa	127425	4744
25944 OI IFF & RER	7590 03/27/2008 PRIDGE PLC	•	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 320850			ALI, HYDER	
ALEXANDRI	A, VA 22320-4850		ART UNIT	PAPER NUMBER
			3747	
			MAIL DATE	DELIVERY MODE
•	•		03/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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FEB 0 6 2008 NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO. APPLICATION NO. FILING DATE 127425 4744 10/572,904 03/21/2006 Tomohiro Shinagawa 02/05/2008 25944 7590 **EXAMINER** OLIFF & BERRIDGE, PLC ALI, HYDER P.O. BOX 320850 **ALEXANDRIA, VA 22320-4850** PAPER NUMBER ART UNIT 3747 **DELIVERY MODE** MAIL DATE

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BUCHANAN INGERSOLL PC FEB -6 2008 DOCKETED

02/05/2008

Office Action Summa FEB 0 6 108 Office Action Summa HYDER ALI SHINAGAWA ET AL FRANCE Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. Extansions of time may be evaluable under the provisions at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, any a reply to simply filed where 2 to provision at 37 CFR 1.13(e). In one text, became, and a design 80 (MONTHS from the multiple date of this communication. Fallows to reply white the set of the state of the second patients are majoristic term elepidations. Set 37 CFR 1.74(e). Status 1) Set Responsive to communication(s) filed on Preliminary amendment filed on 3/21/2005. 2a) This action is FINAL. 2b) This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Exparte Quay/e, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 1.14 Is/are pending in the application. 4) Claim(s) 1.14 Is/are pending in the application. 4) Claim(s) 1.14 Is/are allowed. 5) Claim(s) 1.13 claim 1.13 and 1.13 is/are rejected. 7) Claim(s) 1.13 claim 1.13 and 1.13 is/are rejected. 7) Claim(s) 1.13 claim 1.13 and 1.13 is/are rejected. 7) Claim(s) 1.13 claim 1.13 and 1.13 is/are rejected. 10) The drawing(s) filed on 2.1 March 2005 is/are: a) accepted or b) objected to by the Examiner. 10) The pedicication is objected to by	OFFE							
Examiner Art Unit	3	Application No.	Applicant(s)					
### Examiner HYDER ALI 3747 ### The MAILING DATE of this communication appears on the cover sheet with the correspondence address = Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION after SX (8) MONTHS from the mailing date of this communication. If No peeds the reply is specified since, the existing water and the same period of the communication. If No peeds the reply is specified since, the existing variety and in large SX (8) MONTHS from the mailing date of this communication. If No peeds the reply is specified since, the existing variety and in large SX (8) MONTHS from the mailing date of this communication. If No peeds the reply is specified since, the existing variety and in large SX (8) MONTHS from the mailing date of this communication. If No peeds the reply is specified of the communication. If No peeds the reply is specified of the communication. If No peeds the specified in the specified of the communication and the size mailing date of link communication, even if timely filed, may reduce any search and the specified of the specified copies of the priority documents have been received.	FEB 0 6 2008	10/572.904	SHINAGAWA ET AL.					
HYDER ALI - The MAILING DATE of this communication appears on the cover sheet with the correspondence address - Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. If NO period for reply a specified above, the maximum statutory printed with apply and will easile SIX (8) MONTH's from the maining date of this communication. If NO period for reply a specified above, the maximum statutory printed will apply and will easile SIX (8) MONTH's from the maining date of this communication. If NO period for reply a specified above, the maximum statutory printed will apply and will easile SIX (8) MONTH's from the maining date of this communication. If NO period for reply a specified above, the maximum statutory and advance, and a specified on 3/21/2006. If NO period for reply a specified above, the maximum statutory and advance and specified on 3/21/2006. Status 1) □ Responsive to communication(s) filed on Preliminary amendment filed on 3/21/2006. 2a) □ This action is FINAL. 2b) □ This action is FINAL. 2c) □ This action is FINAL. 2c) □ This action is fined the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) □ Claim(s) 1.14 is/are pending in the application. 4a) Of the above claim(s) □ is/are withdrawn from consideration. 5b) □ Claim(s) 1.21 sara allowed. 6b) □ Claim(s) 1.23 sara 11 sara ellowed. 6b) □ Claim(s) 1.23 sara objected to by the Examiner. 10c) □ The drawing(s) filed on 21 March 2006 is/are: a) □ accepted or b) □ objected to by the Examiner. Application Papers 9) □ The specification is objected to by the Examiner. 10c) □ The drawing(s) filed on 21 March 2006 is/are: a) □ accepted or b) □ objected to by the Examiner. Application Papers 9) □ The specification is objected to by the Examiner. Note the attached Office Action or form PTO-152. Priority unde	Office Action Summary							
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WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. - Extentions of them may be wisable under the proteins of 37 CFR 1.13(k). In no event, however, may a reply be limity filed after SIX (i) MONTHS from the mailing date of this communication. Failure to pay within the ast or extended period for tempty with by thated will apply and will explice SIX (ii) MONTHS from the mailing date of this communication. Failure to pay within the ast or extended period for tempty with by thated cause the application to become ARANDHOEI (31 U.S. € 133). Any reply received by the Office later than three months after the mailing date of this communication, even if smely filed, may reduce any eared patient term dejustment. See 37 CFR 1.704(b). Status 1) ☑ Responsive to communication(s) filed on Preliminary amendment filed on 3/21/2006. 2a) ☐ This action is FINAL. 2b) ☑ This action is non-final. 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) ☑ Claim(s) 1.74 is/are pending in the application. 4) ☑ Claim(s) 1.74 is/are allowed. 6) ☑ Claim(s) 1.75 is/are allowed. 6) ☑ Claim(s) 1.73.5-10.13 and 14 is/are rejected. 7) ☑ The drawing(s) filed on 21 March 2006 is/are: a) ☑ accepted or b) ☐ objected to by the Examiner. Application Papers 9) ☐ The specification is objected to by the Examiner. 10) ☑ The drawing(s) filed on 21 March 2006 is/are: a) ☑ accepted or b) ☐ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in aboyance. See 37 CFR 1.56(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.12(d). 11) ☐ The cath or declaration is objected to by the Examiner.								
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4a) Of the above claim(s) is/are withdrawn from consideration. 5) ☐ Claim(s) is/are allowed. 6) ☒ Claim(s) 1-3.5-10.13 and 14 is/are rejected. 7) ☒ Claim(s) 4.11 and 12 is/are objected to. 8) ☐ Claim(s) 4.11 and 12 is/are objected to. 8) ☐ Claim(s) are subject to restriction and/or election requirement. Application Papers 9) ☐ The specification is objected to by the Examiner. 10) ☒ The drawing(s) filed on 21 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d). 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152. Priority under 35 U.S.C. § 119 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) ☒ All b) ☐ Some * c) ☐ None of: 1. ☒ Certified copies of the priority documents have been received. 2. ☐ Certified copies of the priority documents have been received in Application No 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. Attachment(s) 1) ☒ Notice of References Cited (PTO-892) 1) ☒ Notice of References Patent Drawing Review (PTO-948) 3) ☒ International Disclosure Statement(s) (PTO/SB/08) 5) ☐ Notice of Internation Patent Application	Disposition of Claims							
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DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 13, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Cronyn (US 4,318,369).

As to Claim 1, Cronyn discloses a hydrogen-fueled internal combustion engine (12) that operates upon receipt of one or two or more types of fuel that are selected from hydrogenated fuel and a dehydrogenated product and hydrogen, which dehydrogenated product and hydrogen are obtained by dehydrogenating the hydrogenated fuel, the hydrogen-fueled internal combustion engine (12) comprising: a hydrogenated fuel storage section (128, see Fig. 7); reaction means (14) that includes a catalyst that is positioned to be heatable and dehydrogenates hydrogenated fuel, which is supplied from the hydrogenated fuel storage section, on the catalyst that is heated; separation means for separating hydrogen-rich gas and a dehydrogenated product that are derived from dehydrogenation and a dehydrogenated product storage section (130, see Fig. 7) for storing the separated dehydrogenated product. See col. 3, lines 25-45 and col. 7, lines 27-55.

As to Claim 6, Cronyn discloses a hydrogen-fueled internal combustion engine comprising: a hydrogenated gasoline tank (20) for storing hydrogenated gasoline

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containing an organic hydride; fuel separation means (14) for separating the hydrogenated gasoline into hydrogen-rich gas and dehydrogenated gasoline; and fuel supply means for supplying at least the hydrogen-rich gas and/or the dehydrogenated gasoline on an individual basis or simultaneously, among the hydrogenated gasoline, the hydrogen-rich gas, and the dehydrogenated gasoline, to the internal combustion engine (12) as fuel.

As to Claim 13, Cronyn discloses a hydrogen-fueled internal combustion engine that operates upon receipt of one or two or more types of fuel that are selected from hydrogenated fuel and a dehydrogenated product and hydrogen, which dehydrogenated product and hydrogen are obtained by dehydrogenating the hydrogenated fuel, the hydrogen-fueled internal combustion engine comprising: a hydrogenated fuel storage section (128, see Fig. 7); reaction unit (14) that includes a catalyst that is positioned to be heatable and dehydrogenates hydrogenated fuel, which is supplied from the hydrogenated fuel storage section, on the catalyst that is heated; separation unit for separating hydrogen-rich gas and a dehydrogenated product that are derived from dehydrogenation; and a dehydrogenated product storage section (130, see Fig. 7) for storing the separated dehydrogenated product.

As to Claim 14, Cronyn discloses a hydrogen-fueled internal combustion engine comprising: a hydrogenated gasoline tank (20) for storing hydrogenated gasoline containing an organic hydride; fuel separation unit (14) for separating the hydrogenated gasoline into hydrogen-rich gas and dehydrogenated gasoline; and fuel supply unit for supplying at least the hydrogen-rich gas and/or the dehydrogenated gasoline on an

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individual basis or simultaneously, among the hydrogenated gasoline, the hydrogen-rich gas, and the dehydrogenated gasoline, to the internal combustion engine (12) as fuel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5-10, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian et al (US 6,827,047) in view of Cronyn (US 4,318,369) or Fischer et al (DE 19931104).

According to a first embodiment and as shown in FIG. 1, Qian et al discloses a hydrogen-fueled internal combustion engine (1) that operates upon receipt of one or two or more types of fuel that are selected from hydrogenated fuel (2) and a

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dehydrogenated product (17) and hydrogen, which dehydrogenated product and hydrogen are obtained by dehydrogenating the hydrogenated fuel, the hydrogen-fueled internal combustion engine comprising: a hydrogenated fuel storage section; reaction means that includes a catalyst that is positioned to be heatable and dehydrogenates hydrogenated fuel, which is supplied from the hydrogenated fuel storage section, on the catalyst that is heated; separation means for separating hydrogen-rich gas and a dehydrogenated product that are derived from dehydrogenation.

According to a first embodiment and as shown in FIG. 1, Qian et al discloses all the limitations of claim 1, except for a dehydrogenated product storage section for storing the separated dehydrogenated product.

The Examiner introduces Cronyn or Fischer et al or according to a fourth embodiment and as shown in FIG. 4 of Qian et al patent as the secondary references to show:

Cronyn discloses a dehydrogenated product storage section (20) for storing the separated dehydrogenated product. The dehydrogenated product returned to the storage section 20, to be replaced, periodically, with hydrogenated fuel supply. See col. 1, lines 23-28.

Fischer et al discloses a dehydrogenated product storage section (19) for storing the separated dehydrogenated product. The dehydrogenated product can be mixed with the hydrogenated fuel supply in the hydrogenated fuel tank 1. See Figure 1 and abstract.

According to a fourth embodiment and as shown in FIG. 4 of Qian et al patent discloses a storage tank (46) for temporarily storing the dehydrogenated product, so it

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is possible to more promptly respond to the change in the operational state of an engine. See col. 9, lines 5-20.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a dehydrogenated product storage section for storing the separated dehydrogenated product as taught by either Cronyn or Fischer et al or according to a fourth embodiment and as shown in FIG. 4 Qian et al patent in the first embodiment and as shown in FIG. 1 of Qian et al since this structure of storage would promote dehydrogenated product be mixed with the hydrogenated fuel supply and/or since this structure of storage would promote dehydrogenated product to be replace, periodically, with hydrogenated fuel supply and/or since this structure of storage would promote more promptly respond to the change in the operational state of an engine.

As to claim 2, Qian et al discloses according to a first embodiment and as shown in FIG. 1, valves (6, 9, 14, 16) for arbitrarily selecting one or more types of fuel.

As to claims 3 and 5, Qian et al discloses according to a first embodiment and as shown in FIG. 1, a catalyst for promoting the dehydrogenating reaction is provided in the reformer 5. See col. 4, lines 40-65. Official notice is also taken that storage section are both made of an elastic resin material were available at the time of the present application. See for example, Prasad et al (US 6,924,054) or Becerra et al (US 7,270,907) or Seery (US 5,038,960) or Hansen (US 3,477,610) for the disclosure of flexible fuel storage. Thus storage section is both made of an elastic resin material are old and well known. Official notice is also taken that a honeycomb carrier is used as a

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catalyst carrier were available at the time of the present application. See for example, Abe (US 6,641,795) or Durante et al (US 5,733,518) or Abe et al (US 5,538,697). Thus honeycomb carrier is used as a catalyst carrier are old and well known.

As to claim 6, the claimed limitations of claim 6 are comparable to the rejected claim 1 above. See the rejection of claim 1 above.

As to claims 7-10, the claimed limitations of claim 7 are comparable to the rejected claim 2 above. See the rejection of claim 2 above.

As to claims 13 and 14, the claimed limitations of claims 13 and 14 are comparable to the rejected claim 1 above. See the rejection of claim 1 above.

Allowable Subject Matter

Claims 4, 11, 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prasad et al (US 6,924,054), Becerra et al (US 7,270,907), Seery (US 5,038,960), Hansen (US 3,477,610), Abe (US 6,641,795), Durante et al (US 5,733,518), Abe et al (US 5,538,697) and Shinagawa et al (US 7,089,907).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HYDER ALI whose telephone number is (571) 272-4836. The examiner can normally be reached on M-F (8:30-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Kirk Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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STEPHEN K. CRONIN SUPERVISORY PATENT EXAMINER